

# **VENTILATION MATTRESS**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention:**

The present invention relates to a mattress and, more particularly, to a ventilation mattress, which uses an electric fan to provide currents of air through air vents in the top layer of the outer covering for ventilation. The ventilation mattress can be made in any of a variety of forms for use as a seat mattress, sofa mattress, or bed mattress.

### **2. Description of the Related Art:**

Straws and bamboo strips are commonly used for making cooling mattresses. Lying or sitting on a cooling mattress during a hot weather is comfortable at the initial stage. However, the cooling effect of a cooling mattress is gradually reduced with the time in which the user sits or lies on the cooling mattress.

There are also known seat and bed mattresses formed of strings of ball or block elements. These seat and bed mattresses have open spaces in between the ball or block elements for ventilation. However, when sitting or lying on a seat or bed mattress of this design, the user's body will block the open spaces, and the seat or bed mattress become hot within a short time.

In order to eliminate the aforesaid drawbacks, a seat mattress with enforced currents of air is developed. A seat mattress of this design comprises a hard inner layer, a breathing leather covering covered the hard inner layer, and an electric fan.

5 The hard inner layer has air guide grooves adapted to guide air in a particular direction. The leather covering has air holes for exhaust of air. The electric fan is controlled to induce currents of air into the inside of the seat mattress. This design of seat mattress still has drawbacks. Because currents of air are guided  
10 in a particular direction, the ventilation effect is limited. Further, because the inner layer is a hard member, it is not comfortable to sit on the seat mattress.

## **SUMMARY OF THE INVENTION**

The present invention has been accomplished under the  
15 circumstances in view. It is the main object of the present invention to provide ventilation mattress, which provides a ventilation effect. It is another object of the present invention to provide a ventilation mattress, which is high compressible. It is still another object of the present invention to provide a  
20 ventilation mattress, which can be conveniently adjusted to provide hot air when cold, or cold air when hot. According to one aspect of the present invention, the ventilation mattress

comprises an outer bag, the outer bag comprising a top fabric sheet layer, a bottom fabric sheet layer peripherally sealed to the top fabric sheet layer, at least one air inlet respectively extended out of the top fabric sheet layer and the bottom fabric sheet layer, and a plurality of air vents formed in the top fabric sheet layer in communication with the at least one air inlet; at least one flexible tube respectively connected to the at least one air inlet of the outer bag; at least one electric fan respectively installed in the at least one flexible tube and adapted to induce currents of air into the inside of the outer bag; and a fabric stuffing member stuffed in the outer bag between the top fabric sheet layer and the bottom fabric sheet layer, the fabric stuffing member being formed of interwoven nylon fibers and having open spaces for circulation of air through the at least one air inlet and the air vents. According to another aspect of the present invention, electric cooling fans or electric fans with electric heater means may be alternatively used subject to the condition of the weather.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a sectional view of a part of a ventilation mattress according to the present invention.

FIG. 2 is an exploded view, partially cutaway, of the

ventilation mattress according to the present invention.

FIG. 3 is a schematic sectional view showing the ventilation mattress compressed according to the present invention.

5           FIG. 4 illustrates the ventilation mattress made in the form for use with a sofa according to the present invention.

FIG. 5 illustrates the ventilation mattress installed in a sofa according to the present invention.

FIG. 6 is a side view in section in enlarged scale of  
10   FIG. 5.

FIG. 7 is similar to FIG. 4 but showing a double-sided adhesive tape used instead of mounting holes and screws.

FIG. 8 is similar to FIG. 4 but showing hook and loop materials used instead of mounting holes and screws.

15           FIG. 9 is an exploded view of an alternate form of ventilation mattress according to the present invention.

FIG. 10 illustrates the ventilation mattress of FIG. 9 installed in a chair.

FIG. 11 is an elevational view of another alternate form  
20   of the present invention, showing the ventilation mattress installed in a rack for bed.

FIG. 12 is a cutaway view of still another alternate form

of the present invention, showing the ventilation mattress formed integral with a sofa.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIGS. 1~3, a ventilation mattress **1** is  
**5** shown comprising an outer bag **11**, a fabric stuffing member **13**  
put in the outer bag **11**, an air inlet **12** formed in one side of the  
outer bag **11**, a flexible tube **14** extended from the air inlet **12**,  
and a high-performance fan **15** provided at one end of the  
flexible tube **14** remote from the air inlet **12**. The fabric stuffing  
**10** member **13** is formed of interwoven nylon fibers **132**, having  
open spaces **1321** in it. The outer bag **11** is formed of top and  
bottom fabric sheet layers **131**, having small air vents **111** in the  
top side (top fabric sheet layer). The fan **15** comprises an air  
output port **151** connected to the flexible tube **14**, an air input  
**15** port **152** in communication with the air output port **151**, a grille  
**153** covering the air input port **152**, an air filter **1531** mounted in  
the grille **153**, a battery chamber **155**, a set of battery cells **1551**  
mounted in the battery chamber **155**, a battery lid **1552** covering  
the battery chamber **155**, and a power cord **154** for connection to  
**20** an electric socket to obtain the necessary working voltage. The  
fan **15** can obtain the necessary working voltage either from the  
set of battery cells **1551**, or city power supply via the power

cord 154. When starting the fan 15, electric currents are caused to flow from the air output port 151 into the air inlet 12 and then the open spaces 321 in the fabric stuffing member 13, and then to flow out of the outer bag 11 through the air vents 111.

5           Referring to FIG. 4, the ventilation mattress 1 can be made having a plurality of air inlets 12, a plurality of flexible tubes 14 respectively extended from the air inlets 12, and a plurality of high-performance fans 15 respectively fastened to the flexible tubes 14. Each fan 15 has a plurality of mounting  
10   holes 156 for fastening to a fixed place with screws 1561.

          Referring to FIGS. 5 and 6, the ventilation mattress 1 can be made to fit a sofa 2.

          Referring to FIGS. 7 and 8, a double-sided adhesive tape 157 (see FIG. 7), or hook and loop materials 158 (see FIG. 8)  
15   may be used to fix each fan 15 to a fixed place instead of the aforesaid mounting holes 156 and screws 1561.

          Referring to FIGS. 9 and 10 show an alternate form of the present invention. According to this embodiment, the ventilation mattress 3 comprises an outer bag 31 having air  
20   vents 311, a fabric stuffing member 13 put in the outer bag 31, an air inlet 32 formed in one side of the outer bag 31, a flexible tube 14 connected to the air inlet 32, and a high-performance fan

15 provided at one end of the flexible tube 14 remove from the air inlet 22. The fan 15 is similar to the embodiment shown in FIGS. 1~8 with the exception of the added electric power cord 1541, which is connectable to the socket for cigarette lighter in a motor vehicle. This embodiment of ventilation mattress 3 is suitable for mounting on a chair 4.

FIG. 11 shows still another alternate form of the present invention. According to this embodiment, the ventilation mattress 5 is designed for mounting on a rack for bed 6. The ventilation mattress 5 has air vents 511 in the outer bag 51. After the ventilation mattress 5 has been put on the rack for bed 6, the fans 15 of the ventilation mattress 5 are fixedly fastened to the rack for bed 6 to secure the ventilation mattress 5 in place. When the fan 15 started, induced currents of air are evenly distributed through the fabric stuffing member 13 and the air vents 511. Therefore, the user lying on the ventilation mattress 5 feel comfortable.

Referring to FIG. 12, the ventilation mattress may be directly formed integral with a sofa 2. According to this embodiment, the fabric stuffing member 13 is put in between a lining 21 and a outer covering 22 of the sofa 2. The outer covering 22 of the sofa 2 has air vents 23. When the fans 15

started, induced currents of air flow through the open spaces in the fabric stuffing member 13 to the outside of the sofa 2 via the air vents 23 of the outer covering 22.

5 A prototype of ventilation mattress has been constructed with the features of FIGS. 1~12. The ventilation mattress functions smoothly to provide all of the features discussed earlier.

Although particular embodiments of the invention have been described in detail for purposes of illustration, various  
10 modifications and enhancements may be made without departing from the spirit and scope of the invention. For example, the fans used can be cooling fans for use in hot weather, or fans with electric heater means for use in cold weather. Accordingly, the invention is not to be limited except as by the appended claims.

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